



Modelling the Determinants of Tax Compliance Behavior in Ghana: The Moderating Role of Attitude Towards Tax, and Tax Environment

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Received: 07 January 2026

Accepted: 07 May 2026

DOI: <https://doi.org/10.32479/ijefi.22922>

ABSTRACT

Ghana's tax-to GDP ratio approximately stands at 13.40% which is well below the World Bank's recommendation of 25% for the sustainable economic growth. Tax systems play a crucial role in the development of national economy with the provision of necessary revenues for the operations of government and the public services. Yet, the effectiveness of these systems is largely dependable on the compliance behavior of the taxpayers. To address this challenge and enhance individual's tax compliance behavior in fulfilling their tax obligations, this paper was aimed to develop a robust model to explain the determinants of Tax Compliance Behavior by adopting the Theory of Planned Behavior with slight variation, and the mediating role of Attitude toward Tax and Tax Environment. This study is built on positivist's paradigm, quantitative research approach and survey research design. The data was collected from a cross-section Ghanaian Small and Medium Enterprises in Ghana between August and December, 2024. The structural equation modelling approach was used in analysing the survey data. The study has revealed that tax knowledge, awareness and perception of fairness are significant determinants of attitude towards tax. Moreover, there are mediating roles of attitude towards tax and the overall tax environment in shaping tax compliance behavior. The implication of the results is that, there is a need for tax authorities to prioritize educational programs in enhancing tax knowledge and awareness among citizens. The newly developed model could be used to guide major stakeholders to ensure sustainable, transparent and fairness tax system in the emerging economy contest.

Keywords: Attitude Towards Tax, Tax Environment, Tax Knowledge, Tax Awareness Perception of Tax Fairness Tax Compliance Behavior

JEL Classifications: H26, H25, D91

1. INTRODUCTION

In the midst of development financing, taxation remains major source of raising the required capital towards fiscal policies implementation including sustainable development goals (SDGs) in most developing countries (Werekoh, 2022; Abdu and Adem, 2023). Imperatively, there is a symbiotic relationship between tax compliance and realization of SDGs. The SDG 17 emphasizes the need to enhance the effectiveness of the implementation mechanisms of the 2030 Agenda. It is recommended to enhance the effectiveness of enforcement mechanisms and reinvigorate the Global Partnership for Sustainable Development, as reported by prior researchers (UNDP, 2020; Estifanos, 2022). The document

emphasizes the need to invest in global partnerships in order to achieve sustainable development on a global scale. This includes the mobilization of political support and the strengthening of partnerships between governments, the private sector, and civil society to effectively implement the 2030 Agenda. Furthermore, it is imperative to enhance international collaboration and ensure the alignment of policies and initiatives both domestically and globally (Werekoh, 2022; Abdu and Adem, 2023).

SDG 17 addresses these requirements and urges action to enhance the ability to execute the SDGs across all levels. The successful attainment of the goals and targets outlined in SDG 17 is crucial for the overall achievement of the sustainable development goals

(SDGs). Taxation plays a crucial role in fostering sustainable economic growth and alleviating poverty. Promoting economic growth and financing social and physical infrastructure needs in developing countries can be facilitated by establishing a stable and predictable tax environment (Estifanos, 2022, Werekoh, 2022; Abdu and Adem, 2023). In conjunction with economic expansion, this fosters effective governance, diminishes reliance on long-term aid, and enhances governmental transparency and responsiveness to the public (Rahman, 2022). Based on the findings of Dackehage and Hansson (2012), the presence and mobilization of revenue play a crucial role in both governance and economic performance. Tax revenues serve as the primary means by which governments finance expenditures and contribute to the attainment of sustainable growth objectives. The correlation between taxes and growth patterns can provide insights into economic forecasting. The impact of the overall tax burden on growth differentials has been discussed in previous studies (Takumah, 2014; Kan, Fabrigar, 2017; Karemekra, 2019; Kassa, 2021; Kuhuparuw et al., 2022; Rahman, 2022).

Sustainable development goal 17 emphasizes the importance of establishing a worldwide collaboration for the purpose of achieving sustainable development. SDG 17 places significant emphasis on the crucial role of macroeconomic stability and financing within developing nations. Additionally, it emphasizes the significance of trade and equitable regulations governing such trade. Furthermore, it emphasizes the significance of having access to science and technology, particularly in relation to online information and communication technologies. It is imperative for developed nations to fulfill their official development assistance (ODA) commitments in their entirety. This includes the commitment made by several developed countries to reach the target of allocating 0.7% of their gross national income (GNI) as ODA for developing countries, and 0.15-0.20% of their GNI as ODA for least developed countries (Eurostat, 2013; Envirotech, 2015; Ozturk et al., 2016; Faiza, 2017; Olaoye and Ekundayo, 2019; Fauziati et al., 2020). Facilitate the mobilization of supplementary resources for developing nations from diverse channels, provide assistance in debt financing, debt relief, and debt restructuring as deemed suitable, and aid developing countries in attaining sustainable long-term debt management through harmonized external debt policies.

Ghana's tax-to GDP ratio approximately stands at 13.40% which is well below the World Bank's recommendation of 25% for the sustainable economic growth. Tax systems play a crucial role in the development of national economy with the provision of necessary revenues for the operations of government and the public services. Yet, the effectiveness of these systems is largely dependable on the compliance behavior of the taxpayers. To address this challenge and enhance individual's tax compliance behavior in fulfilling their tax obligations, this paper aims to develop a robust model to explain the determinants of Tax Compliance Behavior by adopting the Theory of Planned Behavior with slight variation, and the mediating role of Attitude toward Tax and Tax Environment. Despite the socio-economic relevance of Taxation in Ghana, there are still discrepancies in empirical literature with regards to actual economic variables (tax audit and sanctions) and non-economic

variables (tax knowledge and fairness perception) that affect tax compliance among firms in Ghana (Asare, 2015; Ayuba et al., 2016; Azene, 2016; OECD, 2016). In practical terms, the study has highlighted the need for tax authorities to prioritize educational programs to enhance tax knowledge and awareness among citizens. The study has also highlighted the enhance transparency in tax collection and allocation processes. Publicizing tax expenditure can strengthen tax fairness perception and help taxpayers see the directs benefits of their contribution (Modugu and Anyaduba, 2014; Berhe, 2015; Burlakova, 2015; Pratama, 2018; Damajanti and Karim, 2017; Nazarova et al., 2024). Establishing a supportive tax environment is essential to encourage compliance among taxpayers. Simplifying tax regulations, providing clear guidelines, ensuring efficient enforcement mechanisms and implementing user-friendly technologies can significantly help in reduces barrier to enhance tax compliance behavior. The paper is further divided into the following sections: The second section presents the review of the literature, the third section presents the methodology of the research, the fourth section presents the results and the discussions and the final section presents the conclusions and the implications of the study.

2. LITERATURE REVIEW (THEORETICAL UNDERPINNING AND HYPOTHESES DEVELOPMENT)

2.1. Theoretical Underpinning

The theoretical framework underpinning this study is the theory of planned behavior. Theory of planned behavior has been used extensively in explaining and predicting the human behavior in compliance literature. The theory developed by Ajzen (1991), posits that the individual's behavior can be guided into three factors which is known as attitudes, subjective norms and perceived behavioral control. Together, these factors affect the intention towards engaging in something. Subjective norms are the expectations of the influential individuals or groups that a specific conduct will be accepted and encouraged. Subjective norms are shaped by an individual's incentive to conform to the opinions of others and their perception of social pressure from others to behave in a particular way (Ham et al., 2015). The term "subjective norm" in social psychology describes the felt social pressure to participate in a specific action or refrain from doing so. Subjective norms reflect people's perceptions of how their reference groups would see them if they engage in a particular conduct (Al-Swidi et al., 2014). An attitude is a preparedness to respond to things in the surroundings as a way of appreciating them. According to Cruz et al. (2015), attitude refers to a person's response to an environmental object; entrepreneurship is the study of these items. An attitude is a psychological inclination that manifests as a degree of favoritism or disfavor in the assessment of particular phenomena. The degree to which a person leans toward liking or disliking (favourable or unfavourable) certain behaviour is known as their attitude. An attitude is a broad, long-lasting assessment of people, including one, things, or problems. As a result of learning, an attitude is a persistent reaction positive or negative to an object (Gayatri et al., 2021). Regarding a tax activity, someone may have a neutral, negative, or positive attitude towards tax. An individual's intention to engage in a tax payment behavior will rise when their

attitude improves (Mary and Amber, 2021). A person's assessment of how simple or complex it is to carry out the desired tax activity is known as perceived behavioral control (Calabro and Eva, 2023). Behavioral intentions are the subjective probability or perceived likelihood that a person will engage in a specific behavior. The motive or intention to carry out a given conduct in the near future is referred to as a behavioral intention. A person's propensity to use specific technology to help them reach their goals is reflected in their behavioral intention (Moorthy et al., 2018; Revyathi and Tselios, 2019; Setiawan et al., 2022). As showed in the Figure 1, the main purpose of this study is to develop a robust model to explain the determinants of Tax Compliance Behavior by adopting the Theory of Planned Behavior with slight variation.

2.2. Tax Awareness and Attitude towards Tax

The first proposition of the study is that, tax awareness influence attitude towards tax. Tax awareness is critical towards attitude of taxpayers. Tax awareness increase the clarity on how the taxes are calculated and used, which encourages more positive view on responsibilities of taxes (Sumaryono, 2012; Zyuganov, 2015; Shulzhenko and Uchenyj, 2017; Kanisius et al., 2023; Tajuddin et al., 2023). In a situation where taxpayers are aware of the reasons, they are to pay tax significantly and positively influence their attitude. Taxpayers must possess high awareness level on taxation in order to implement taxation, which include their understanding in the general tax rules and procedures, as well as any applicable laws and regulations (Devos, 2016; Yusuf and Ismail, 2017; Shulzhenko and Uchenyj, 2017; Harefa, 2019; Kanisius et al., 2023). When the individuals are aware of the tax system it helps them perceive fairness which reduces misconceptions, and motivates them to comply with it. In light of this, the paper hypothesizes that;
 H_1 : Tax Awareness positively and significantly influence Attitude towards Tax

2.3. Tax Knowledge and Attitude towards Tax

The second proposition of the study is that, tax knowledge influence attitude towards tax. Taxpayers with knowledge will approach compliance and payment for their duties with a sense of self-consciousness (Hartini, 2018; Listyowati et al., 2018; Li et al., 2023). Tax knowledge is the ability of the taxpayer to understand tax laws, including rates based on amounts paid under the law and tax benefits that are beneficial for shared needs. A person with an education will know their rights and obligations and will obey them without being coerced or intimidated with various consequences or fines. Taxpayers must possess knowledge of taxation in order to implement taxation, including an understanding of the general

tax rules and procedures, as well as any applicable laws and regulations (Harefa, 2019; Vionita and Kristanto, 2019; Tika and Setiyawati, 2021; Tsiantikoudis et al., 2022). The comprehension or information a taxpayer has gained about taxes is known as tax knowledge. Understanding fundamental tax principles as they are applied inside a nation is known as tax knowledge (Alkhatib and Abdul Jabbar, 2017). Three types of tax knowledge exist: procedural tax knowledge, legal tax knowledge, and general tax knowledge. According to Bornman and Ramutumbu (2019), tax knowledge focuses on the necessity of being financially aware, legal tax knowledge on the necessity of comprehending regulations, and procedural tax knowledge on the understanding of tax compliance procedures. In light of the above, the paper hypothesizes that;
 H_2 : Tax Knowledge positively and significantly influence Attitude towards Tax

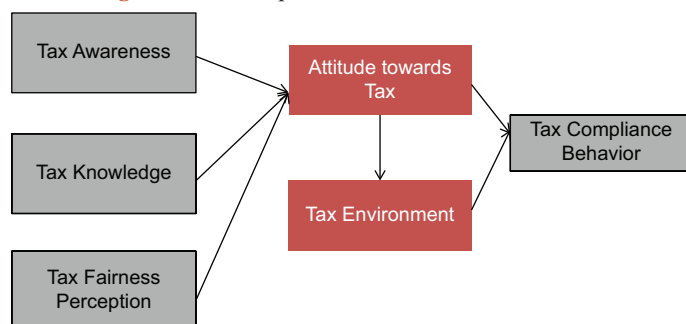
2.4. Tax Fairness Perception and Attitude towards Tax

The third proposition is that, tax fairness influence attitude towards tax. One prerequisite for tax compliance is a fair tax system. The legitimacy of the tax system depends on its fairness since it influences people's propensity to pay taxes or avoid them, either directly or indirectly through their trust in the system and the authorities (Tigist, 2017). The way that taxpayers view the fairness of the tax system is one of the things that makes it possible for the government to carry out its objectives and initiatives. If taxpayers think they are paying more in taxes than they receive from the government, in comparison to their prior tax burden, or in comparison to what other taxpayers are paying, they may view the tax system as unfair (Ahmed and Kadir, 2015; Venkatesh et al., 2012; Wrede, 2014; Wedayanti and Giantari, 2016; Zhang, 2018). The equitable payment of tax (and related penalties) to tax authorities, with the incidental amount matching the recorded amount of tax, is referred to as tax fairness. According to Alkhatib et al. (2019), tax justice is regarded as a significant element influencing taxpayer behavior and a non-economic influencer of tax evasion. The growth of the modern economy and society depends heavily on tax equity. It aids in guaranteeing that the government has enough cash on hand to support infrastructure and public services. Fair taxes can decrease the wealth gap and advance social justice. Additionally, tax fairness can increase the legitimacy of the government by fostering greater openness and trust (Marco, 2012; Mardiasmo, 2016; Listyowati et al., 2018; Li et al., 2023; Wei, 2024). In order for there to be tax justice, there must be a balance between the taxpayers' negative tax burden and their labor income from social output (Lind, 2021). In light of the above, the paper hypothesizes that;
 H_3 : Tax Fairness Perception positively and significantly influence Attitude towards Tax

2.5. Attitude towards Tax and Tax Environment

The fourth proposition is that, attitude towards tax influence tax environment. When there is positive attitude of taxpayers towards taxes, it enhances the culture of compliance in the environment of tax. The culture leads to reduction level of tax evasion and greater level of trust in the system of tax. Also, when there is a positive attitude towards taxes it promotes and increased the trust among tax authorizes which improve the cooperation and compliance among taxpayers (Roseik, 2015; Xie, 2019; Tiantikoudis et al.,

Figure 1: Tax compliance behavioral research model



2022). Further, a great and positive attitude towards taxes leads to high level of public support on the policies and reforms of taxes. It also encourages voluntary compliance of taxes which create a stable and predictable tax environment. According to He et al. (2019), an environmental tax is a cost-effective way to internalize the costs of ecological degradation and environmental pollution into production costs and market prices. Environmental resources are then distributed through market mechanisms. The effectiveness of environmental taxes, their economic viability, their capacity to generate public income, and their transparency are only a few of their many noteworthy benefits (Rosiek, 2015). In light of the above, the paper hypothesizes that;

H₄: Attitude towards Tax positively and significantly influence Tax Environment

2.6. Attitude towards Tax and Tax Compliance Behavior

The fifth proposition is that, attitude towards tax influence tax compliance behavior. An attitude is the preparedness to respond to things in the surroundings as a way of appreciating them. An attitude is a psychological inclination that manifests as a degree of favoritism or disfavor in the assessment of particular phenomena. Tax compliance reflect accurately reporting tax liability in line with the tax laws in effect at the time the return is submitted and filing all mandatory tax returns on time (Fauziati, 2016; Listyowati et al., 2018). Reporting income and paying all taxes in compliance with the relevant laws, rules, and court decisions are included in the scope of tax compliance. True reporting of the tax base, accurate and timely computation of the liability, timely submission of the return, and timely payment of the amounts due are generally considered to be aspects of tax compliance. Filling out the Income Tax Form, accurately declaring all taxable income, and paying all taxes due on time without waiting for follow-up actions from the authorities constitute tax compliance. According to Frederick and Peter (2019), tax compliance refers to how closely a taxpayer complies with the nation's tax regulations in terms of tax estimation and timely payment. When there is a positive attitude of taxpayers towards taxes, they comply with the rules and regulations. In light of the above, the paper hypothesizes that;

H₅: Attitude towards Tax positively and significantly influence Tax Compliance Behavior

H_{5a}: Attitude towards tax significantly moderates the relationship between tax compliance and its determinants

2.7. Tax Environment and Tax Compliance Behavior

The last proposition of the paper is that, tax environment influence tax compliance behavior. Since environmental taxes have the potential to internalize externalities, the tax rate ought to match the marginal cost of the externalities. Environmental taxes are a component of a larger policy framework that integrates a number of mechanisms, such as public infrastructure investment, subsidies, and pricing instruments. According to Tiantikoudis et al. (2022) environmental taxes are the only fiscal policy tool that generates revenue that may be allocated to environmental protection. Environmental taxation, or levying a fee on activities that negatively impact the environment, is suggested as a remedy that would both protect the environment and increase national revenue. Governments have consistently employed environmental

levies to encourage environmentally conscious behavior and green consumerism among producers and consumers (Magdalena et al., 2019). According to He et al. (2019), an environmental tax is a cost-effective way to internalize the costs of ecological degradation and environmental pollution into production costs and market prices. Additionally, according to Ettahiri and Benazzou (2024) it is a particular kind of levy designed to prevent environmental degradation and excessive use of natural resources. Environmental taxes encourage businesses to use green raw materials and energy sources, cut back on energy use and emissions, and implement green process innovation (Xie, 2019). In light with the above, the paper hypothesizes that;

H₆: Tax Environment positively and significantly influence tax compliance behavior

H_{6a}: Tax environment significantly moderates the relationship between tax compliance and its determinants

3. RESEARCH METHODOLOGY

3.1. Research Design

The study is based on an objective research paradigm, positivist ontology and quantitative research methods. Quantitative research methods are used to develop a robust model to explain the extent to which Attitude toward Tax and its critical determinants drives Tax Compliance Behavior by adopting the Theory of Planned Behavior with slight variation because they rely on mathematical, statistical or computational methods to validate measurable or quantifiable data. Quantitative studies are also used to generalise the phenomenon or opinion under study. In addition, survey strategies have been used to gather opinions and perceptions from members of the target population, from which conclusions can be drawn about the wider population from which the sample was drawn. The survey design was used because it is cost-effective, the sample size is large and the results are general.

3.2. Population and Sampling Procedures

The main population of the study consists of small and medium enterprises in Kumasi and Accra. The target population includes service sector, manufacturing sector, construction sector, distribution and retail sectors, bank and non-bank financial institutions. The sample size of the survey was estimated using the principles of the rule of 10 as suggested by Hair et al (2011). According to this principle, the minimum required sample size is determined by multiplying the number of paths directed towards a latent variable SEM by ten. The SMEs in this study were selected using probability sampling. In a probability sample, each SME has an equal chance of being selected. The aim is to find a sample that is representative of the characteristics of the population. Random sampling is a very effective method for reducing sampling error and ensuring representativeness, so this method was used to select participants.

3.3. Constructs Measurement and Data Collection Instrument

All scales used in this study are taken from previous studies. For example, the tax awareness scale was adopted from the study of Twum et al. (2020), the tax knowledge scale from the study of Twum et al. (2020), tax fairness perception scale was adopted

from Fufa (2017); Kim and Lee (2020), attitude towards tax scale was adopted from Fufa (2017); Kim and Lee (2020), tax environment scale was adopted from Karemera (2017); Xie et al. (2019), and finally tax compliance behavior scale was adopted from Palil (2010); Twum et al. (2020). This study used a survey instrument as the main data collection tool. The survey data was collected from a large sample of respondents drawn from a large population. The effectiveness of the survey design was determined by factors related to the collection of the survey data, such as the method of communication between the respondent and the survey (offline) and the manner in which the data were transmitted to the respondents. An in-person survey was used for this study. Gathering information from respondents face-to-face is much more effective than other media, as respondents trust the interviewer and give honest and clear answers on the subject. The survey was conducted among public sector employees. Respondents' answers were rated on a five-point Likert scale (strongly disagree = 1, strongly agree = 5). Previous researchers have argued that the five-point Likert scale is very effective. Participants were asked to select a statement on the scale related to tax knowledge, tax awareness, tax fairness perception, attitude towards tax, tax compliance behavior and tax environment.

3.4. Data Analysis and Scale Validations

Specifically, a variance-based SEM strategy was used; PLS-SEM describes an evaluation diagram of a measurement model (external model). It includes the evaluation of (internal) structural models, such as convergent validity tests, discriminant validity (cross-validity) tests, average variance extraction (AVE) tests, combined reliability tests, R-quantile (value) tests, cross-validity tests and hypothesis tests. The conceptual model describes the relationship between the predictors. Mediation occurs when there is a third mediator between two related constructs. In other words, a change in the exogenous construct leads to a change in the mediating variable, which in turn leads to a change in the endogenous construct. The mediating factor thus determines the nature of the relationship between the two constructs (i.e. the underlying mechanism or process). The causal mechanism between the exogenous and endogenous constructs can be explained by analysing the strength of the relationship between the mediating variable and the other constructs. In Smart-PLS, the results of the PLS-SEM algorithm and bootstrapping procedure include direct effects, sum of indirect effects, specific indirect effects and interactions. These results are available in the Smart-PLS results summary and allow for proxy analysis (e.g. as suggested by Hair et al., 2017). Smart-PLS results allow for the analysis of models with one or more mediating factors (parallel or sequential mediation). In this regard, the following should be noted. In this work, multiple mediation analysis was performed. The mediation effects were based on three conditions: (a) Fully mediated (only indirect effects), (b) Partially mediated (direct and indirect effects) and (c) unmediated (no indirect effects).

3.5. Ethical Considerations

Ethical considerations were taken into account, as participation in the study was necessary. Each participant was given a consent form before the start of the study. All those who agreed to participate in the study were guaranteed: Voluntary participation, protection

from harm, respect for human rights, anonymity of participants and confidentiality. These considerations were taken into account throughout the study.

4. RESULTS AND DISCUSSIONS

4.1. Descriptive Statistics

The descriptive statistics results comprising of mean, median, minimum, maximum and standard deviation as well as the normality test comprising of kurtosis and skewness and the variance inflationary factor (VIF) have been detailed in the Table 1. The findings of the study revealed that, most of the respondents neither agreed nor disagreed on the various items in the survey, the mean scores exceeded 3.0 and most of the standard deviation was >1 . For testing normality, skewness and kurtosis were used, a skewness and kurtosis ranging from -2 to $+2$ indicate that, there was a normal distribution. A VIF score of <10 was achieved.

4.2. Convergent and Discriminant Validity

It is very crucial during SEM analysis that, the researcher has to deal with measurement model focusing on how valid the construct is, with the use of convergent and discriminant validities. This is the first step in dealing with the model measurement. There are four different tests to be conducted in order to address the issues of convergent validity these include Cronbach alpha (CA) test, composite reliability (CR) test, average variance extracted (AVE) test, and the factor loadings. For a construct to meet the convergent validity requirement, the CA score should be 0.70 or better, the CR score should be 0.70 or better, the AVE should not be below 0.5 and the factor loading should be 0.70 or better. The results revealed that for the constructs used in the model, the CA scores ranges from 0.881 to 0.941, the CR score ranges from 0.919 to 0.955, AVE score ranges from 0.739 to 0.813, and the factor loading ranges from 0.788 to 0.942. The above results indicate that, the convergent requirement was met in the SEM analysis as showed in Table 2 and Figure 3. For the discriminant validity, there are two test used in its determination. Firstly, the square roots of the AVEs (Fornell-Larcker, 1981) criteria and the Heterotrait – Monotrait (HTMT) (Henseler et al., 2015). The squared AVEs scores are greater than the acceptable scores for inter-constructs correlation. The scores for the HTMT are indicated in the Table 3, which ranges from 0.871 to 1.087.

4.3. Structural Model

As showed in Figure 2, the predictive power of the model ranged between 89.8 to 97.2 percent, suggesting Table 4 presents the path coefficients and the hypotheses testing results. The results indicated that, AT positively and significantly influence TCB ($\beta = 0.418$, T-statistics = 1.962, $P < 0.05$). The result significantly supports the H_1 of the study. Again, AT positively and significantly influence TE ($\beta = 0.948$, T-statistics = 129.818, $P < 0.05$). Therefore, the result significantly supports the H_2 of the study. Further, TA positively and significantly influence AT ($\beta = 0.199$, T-statistics = 3.523, $P < 0.05$). Moreover, TE positively and significantly influence TCB ($\beta = 0.419$, T-statistics = 2.013, $P < 0.05$). The result implies, the H_3 of the study is supported. Furthermore, TF positively and significantly influence TCB ($\beta = 0.243$, T-statistics = 4.217, $P < 0.05$). The result indicates that, the H_4 of the study supported.

Table 1: Descriptive statistics, normality test and variance inflatory factor (VIF)

Constructs	Mean	Median	Min	Max	Standard Deviation	Kurtosis	Skewness	VIF
AT1	3.702	4.000	1.000	5.000	1.070	-0.133	-0.681	3.664
AT2	3.780	4.000	1.000	5.000	0.990	0.197	-0.669	3.724
AT3	3.863	4.000	1.000	5.000	1.078	0.770	-0.1043	4.573
AT4	3.859	4.000	1.000	5.000	0.990	0.336	-0.745	5.720
AT5	3.702	4.000	1.000	5.000	1.070	-0.133	-0.681	4.292
TA1	3.707	4.000	1.000	5.000	1.101	0.054	-0.813	3.154
TA2	3.698	4.000	1.000	5.000	1.085	-0.108	-0.714	2.690
TA3	3.776	4.000	1.000	5.000	1.072	0.570	-0.953	4.048
TCB1	3.605	4.000	1.000	5.000	1.200	-0.615	-0.583	6.535
TCB2	3.576	4.000	1.000	5.000	1.194	-0.637	-0.553	6.006
TCB3	3.761	4.000	1.000	5.000	1.146	-0.203	-0.735	2.326
TCB4	3.585	4.000	1.000	5.000	1.168	-0.418	-0.605	3.352
TCB5	3.605	4.000	1.000	5.000	1.183	-0.402	-0.618	3.642
TE1	3.693	4.000	1.000	5.000	1.095	-0.302	-0.647	2.508
TE2	3.717	4.000	1.000	5.000	1.077	0.261	-0.857	3.560
TE3	3.698	4.000	1.000	5.000	1.085	-0.108	-0.714	6.960
TE4	3.751	4.000	1.000	5.000	1.060	0.162	-0.776	5.043
TF1	3.610	4.000	1.000	5.000	1.174	-0.472	-0.621	5.045
TF2	3.615	4.000	1.000	5.000	1.186	-0.319	-0.682	3.182
TF3	3.839	4.000	1.000	5.000	1.068	0.299	-0.861	1.776
TF4	3.844	4.000	1.000	5.000	1.052	0.254	-0.822	1.770
TF5	3.727	4.000	1.000	5.000	1.019	-0.056	-0.630	3.438
TK1	3.868	4.000	1.000	5.000	0.996	0.299	-0.746	1.853
TK2	3.702	4.000	1.000	5.000	1.070	-0.133	-0.681	3.657
TK3	3.717	4.000	1.000	5.000	1.077	0.261	-0.857	3.788
TK4	3.776	4.000	1.000	5.000	1.072	0.570	-0.953	3.285

AT: Attitude towards tax, TA: Tax awareness, TCB: Tax compliance behaviour, TE: Tax environment, TF: Tax fairness, TK: Tax knowledge

Table 2: Discriminant validity and reliability using the Fornall-Larcker (1981) criterion

Constructs	CA	Rho_A	CR	AVE	AT	TA	TCB	TE	TF	TK
AT	0.924	0.927	0.942	0.766	0.875					
TA	0.895	0.897	0.927	0.762	0.968	0.873				
TCB	0.941	0.944	0.955	0.809	0.816	0.819	0.900			
TE	0.923	0.924	0.945	0.813	0.948	0.974	0.816	0.901		
TF	0.881	0.888	0.919	0.739	0.945	0.904	0.828	0.913	0.859	
TK	0.905	0.906	0.934	0.781	0.982	0.980	0.815	0.966	0.930	0.884

CA: Cronbach alpha, CR: Composite reliability, AVE: Average variance extracted, AT: Attitude towards Tax, TA: Tax awareness, TCB: Tax Compliance behaviour, TE: Tax environment, TF: Tax Fairness, TK: Tax Knowledge

Table 3: Heterotrait-Monotrait Ratio (HTMT)

Constructs	AT	TA	TCB	TE	TF	TK
AT						
TA	1.062					
TCB	0.874	0.891				
TE	1.020	1.071	0.871			
TF	1.032	1.007	0.906	1.003		
TK	1.071	1.087	0.880	1.057	1.029	

AT: Attitude towards Tax, TA: Tax awareness, TCB: Tax compliance behaviour, TE: Tax environment, TF: Tax fairness, TK: Tax knowledge

Also, TK positively and significantly influence TK ($\beta = 0.561$, T-statistics = 6.909, $P < 0.05$). The result significantly supports the H_3 of the study. Moving on with the indirect effect, TE significantly mediates the relationship between AT and TCB ($\beta = 0.397$, T-statistics = 2.012, $P < 0.05$). Again, AT significantly mediates the relationship between TF and TE ($\beta = 0.231$, T-statistics = 4.271, $P < 0.05$). Also, AT and TE significantly mediate the relationship between TK and TCB ($\beta = 0.223$, T-statistics = 1.986, $P < 0.05$). However, AT did not significantly mediate the relationship TA and TCB ($\beta = 0.083$, T-statistics = 1.703, $P > 0.05$). On the

contrary, AT significantly mediates the relationship TA and TE ($\beta = 0.188$, T-statistics = 3.498, $P < 0.05$). On the other hand, AT did not significantly mediate the relationship between TK and TCB ($\beta = 0.235$, T-statistics = 1.867, $P > 0.05$). Also, AT and TE did not significantly mediate the relationship between TA and TCB ($\beta = 0.079$, T-statistics = 1.582, $P > 0.05$). Again, AT did not significantly mediate the relationship between TF and TCB ($\beta = 0.102$, T-statistics = 1.775, $P > 0.05$). Further, AT and TE did not significantly mediate the relationship between TF and TCB ($\beta = 0.097$, T-statistics = 1.775, $P > 0.05$). Meanwhile, AT significantly mediates the relationship between TK and TE ($\beta = 0.531$, T-statistics = 6.891, $P < 0.05$). Table 5 presents the fitness of the model.

4.4. Discussion of Results

This paper has been conducted to developed a framework to explain the extent to which attitude towards tax drives tax compliance behavior by adopting the theory of planned behavior with slight variations to enhance tax compliance. One of the objectives of this study is to ascertain the critical factors that affect Attitude towards Tax among taxpayers. The study has revealed

Figure 2: R-square

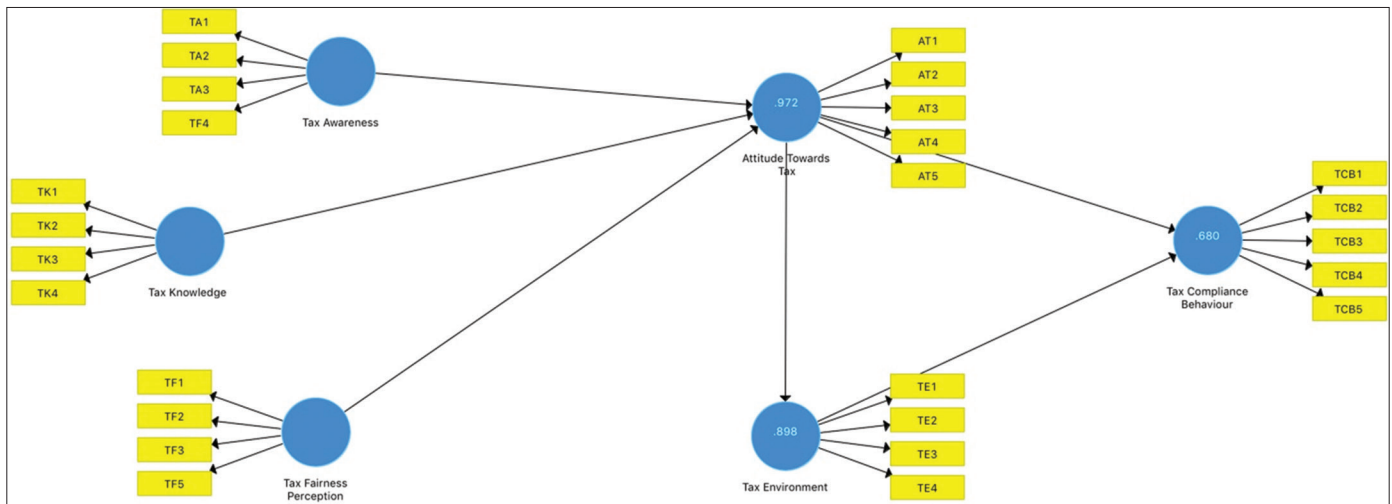


Table 4: Path coefficients and hypotheses testing

Hypothesized-Path	Original sample	Sample mean	Standard deviation	T statistics	P-values
Direct effect					
AT -> TCB	0.418	0.429	0.213	1.962	0.050
AT -> TE	0.948	0.947	0.007	129.818	0.000
TA -> AT	0.199	0.202	0.056	3.523	0.000
TE -> TCB	0.419	0.408	0.208	2.013	0.045
TF -> AT	0.243	0.243	0.058	4.217	0.000
TK -> AT	0.561	0.559	0.081	6.909	0.000
Indirect effect					
AT -> TE -> TCB	0.397	0.386	0.197	2.012	0.045
TF -> AT -> TE	0.231	0.230	0.054	4.271	0.000
TK -> AT -> TE -> TCB	0.223	0.215	0.112	1.986	0.048
TA -> AT -> TCB	0.083	0.085	0.049	1.703	0.089
TA -> AT -> TE	0.188	0.191	0.054	3.498	0.001
TK -> AT -> TCB	0.235	0.241	0.126	1.867	0.062
TA -> AT -> TE -> TCB	0.079	0.079	0.050	1.582	0.114
TF -> AT -> TCB	0.102	0.104	0.060	1.694	0.091
TF -> AT -> TE -> TCB	0.097	0.093	0.054	1.775	0.076
TK -> AT -> TE	0.531	0.530	0.077	6.891	0.000

AT: Attitude towards tax, TA: Tax awareness, TCB: Tax compliance behaviour, TE: Tax environment, TF: Tax fairness, TK: Tax knowledge

Table 5: Model fitness

	Saturated model	Estimated model
SRMR	0.096	0.097
d_ ULS	3.223	3.313
d_ G	n/a	n/a
Chi-square	Infinite	Infinite
NFI	n/a	n/a

that tax knowledge, tax awareness and tax fairness perception are significant determinants of attitude towards tax which is consistent with the theory of planned behavior (Abera, 2016; Altikulaç, 2016; Oladipupo and Obazee, 2016; Huda, 2020; Alhadi and Nugrahanto, 2021; Ahmad et al., 2023). This suggest that individuals with higher tax knowledge more likely to exhibit more positive attitude towards tax compliance as they tend to understand better the benefits of paying taxes (Saad, 2014; Pratama, 2018; Dhian and Hanifah, 2021; Hendra et al., 2022; Drew, 2023). Similarly, increased awareness leads to a more favorable attitude tax compliance, as individuals understand their role in contributing to social well-being. Again, perception of fairness promotes positive attitude towards tax compliance.

Another objective of this study is to determine the relationship the mediators, attitude towards tax and tax environment, and tax compliance behavior. The results from this study has evidently indicated the existence of a positive and significant relationship between attitude towards tax and tax environment, and tax compliance behavior. This result implies individuals with a positive attitude towards taxes are more likely to comply to tax obligations. A favorable tax environment characterized by clear regulations, effective enforcement, and a perception of fairness encourages tax compliance. When taxpayers perceive taxes as just and beneficial, their compliance behavior tends to increase, highlighting the significance of fostering positive tax environment and culture in order to enhance overall tax compliance (Nurul et al., 2012; Jayawardane, 2016; Hoey, 2016; Pardana et al., 2019; Rahmawati et al., 2020; Ridhan et al., 2021; Irina et al., 2021; Kagan, 2021; Samsu, 2022).

Again, the final objective of this study was to determine the mediation role of attitude towards tax and tax environment. This objective, first of all, examined the mediation role of attitude towards tax on the relationship its critical determinants and tax

Figure 3: Item loadings

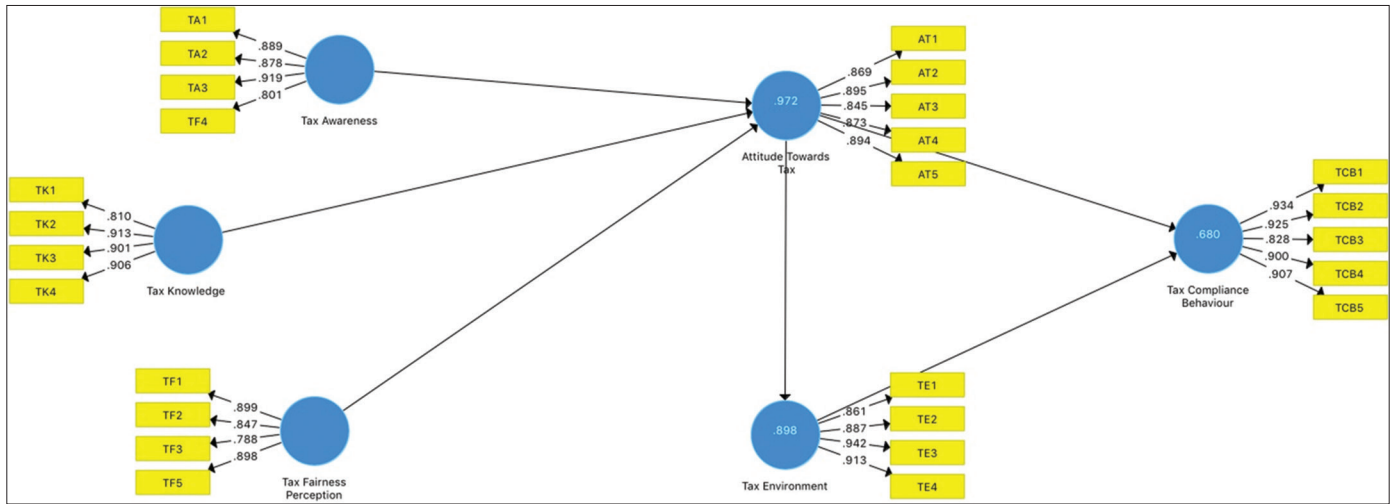
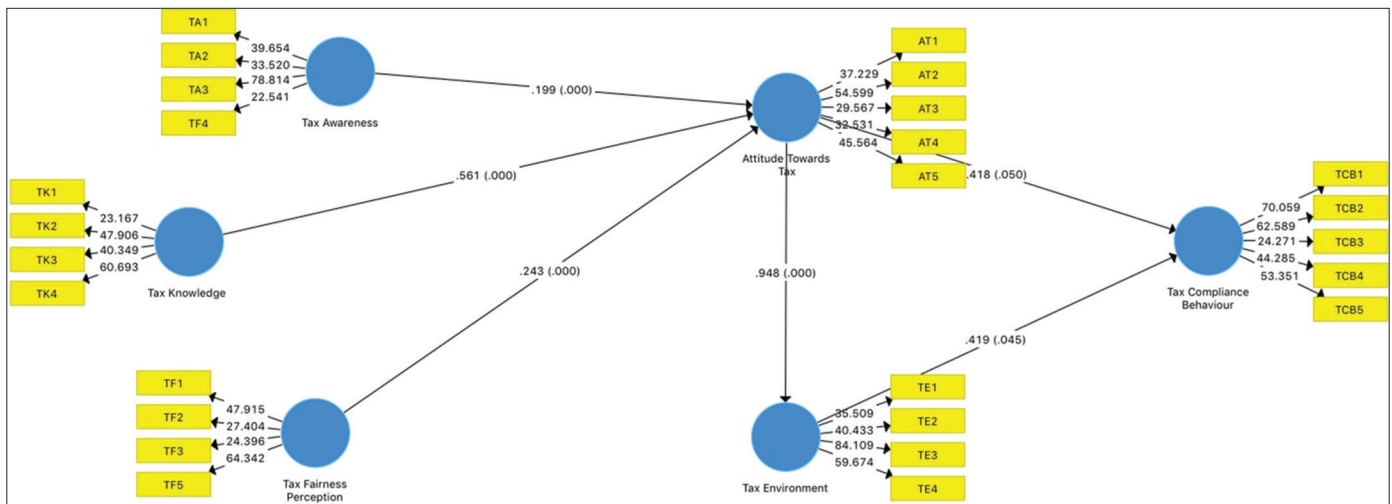


Figure 4: T-values



compliance behavior and, secondly, investigated the mediating role of attitude towards tax and tax environment on the relationship between the determinants of attitude towards tax and tax compliance behavior (Ferry et al., 2015; Olaoye and Ogundipe, 2018; Fredrick and Peter, 2019; Gultom et al., 2020; Handoko et al., 2020; Hantono, 2021; Nyarkpoh et al., 2023). The results from this study revealed that Attitude towards tax significantly mediates the relationship between all the determinants of Attitude towards tax (tax knowledge and tax fairness perception) and tax compliance behavior with the exception of tax awareness. Again, attitude towards tax and tax environment significantly mediates the relationship between all the determinants of Attitude towards (tax awareness, tax knowledge, and tax fairness perception) and Tax compliance. This implies individuals with strong tax knowledge and strong tax fairness perception are more likely to developed positive attitude towards taxes which fosters compliance as these individuals are more willing to fulfill their tax obligations (Anggraini, 2016; Amah, and Nwaiwu, 2018; Alkhatib et al. 2019; Nyoman et al., 2019; Anastasia and Santoso, 2020). However, the mere awareness of tax does not effectively influence tax compliance behavior.

5. CONCLUSION AND IMPLICATIONS

As reported in Nyakpoh et al. (2023), Ghana’s tax-to-GDP ratio approximately stands at 13.40% which is well below the World Bank’s recommendation of 25% for sustainable economic growth. To address this challenge and enhance individuals’ tax compliance behavior in fulfilling their tax obligations, this paper was aimed to develop a robust model to explain the extent to which attitude toward Tax and its critical determinants drives tax compliance behavior by adopting the theory of planned behavior with slight variation. The findings suggest that tax knowledge, awareness and perception of fairness are significant determinants of attitude towards tax. The study also highlights on the mediating role of both attitude towards tax and the overall tax environment in shaping tax compliance behavior. This result indicates that the enhancement tax knowledge and perception of fairness should be. Prioritized as key strategies in improve tax compliance in Ghana. Ultimately, promoting positive tax culture, where citizens feel informed and perceive taxes as essential and beneficial, is mandatory in achieving higher levels of sustainability of public revenue.

5.1. Theoretical and Practical Implication

Theoretically, the paper has been able to develop a model for improving tax compliance behavior among taxpayers. The study has reinforced the applicability of the Theory of planned behavior in understanding tax compliance behavior among individuals by revealing how compliance behavior can be shaped by the critical determinants of attitude towards tax. In practical terms, the study has highlighted the need for tax authorities to prioritize educational programs to enhance tax knowledge and awareness among citizens. The study has also highlighted the enhance transparency in tax collection and allocation processes. Publicizing tax expenditure can strengthen tax fairness perception and help taxpayers see the directs benefits of their contribution. Establishing a supportive tax environment is essential to encourage compliance among taxpayers. Simplifying tax regulations, providing clear guidelines, ensuring efficient enforcement mechanisms and implementing user-friendly technologies can significantly help in reduces barrier to enhance tax compliance behavior.

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